# FOCUS

August 2003

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# New Web Site Puts Highway Specifications at Your Fingertips

housands of highway construction specifications from all 50 States, the District of Columbia, and Puerto Rico are now instantly available online at the new National Highway Specifications Web site (www.specs.fhwa. dot.gov). The site is a collaborative effort of the Federal Highway Administration (FHWA) and the American Association of State Highway and Transportation Officials (AASHTO). It serves as a clearinghouse and electronic library where users can search. review, cross-reference, and download current specifications and other specificationrelated documents. Previously, locating and retrieving current specifications was a time

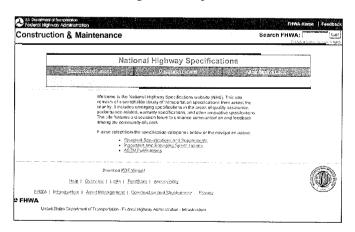
agencies issue specifications and rules affecting highway construction.

"Consolidation of these multiple sources of documentation in one place will benefit highway agencies, contractors, construction engineers, and researchers. Electronic access, indexing, and search features will save time and money for all users while improving practices and promoting higher quality in construction end products," says Ken Jacoby of FHWA.

Documents included on the site are:

- Approved standard construction specifications and supplements from departments of transportation in the 50 States, District of Columbia, and Puerto Rico.
- Current approved standard specifications and supplements from FHWA's Federal Lands Highway Divisions.
- AASHTO Guide Specifications and American Society for Testing and Materials' Summaries.
- Innovative provisions such as quality assurance, warranty, and performancerelated specifications.

The site also features discussion forums on such topics as performance-related specifications, design-build, warranty specifications, and quality assurance. And users can find links to specification-related Web sites hosted by highway agencies and others. In consolidating information nationwide on highway specifications, "the National High-





Federal Highway Administration

consuming and often tedious process. While more State highway agencies are putting their construction specifications online, finding and navigating the various Web sites can still be difficult. And in addition to the various State specifications, more than 20 national trade organizations and several Federal

### FHWA Launches Transportation Security Web Site

ince September 11, 2001, considerable Federal, State, and local resources have been devoted to ensuring the safety and security of the Nation's transportation system. A new Federal Highway Administration (FHWA) Operations Security Web site (www.ops.fhwa.dot.gov/OpsSecurity) was recently launched to provide agencies with streamlined access to information on improving surface transportation security.

"The need to ensure the security of America's surface transportation system is a top priority for the FHWA," said FHWA Administrator Mary E. Peters. "We are working closely with the Department of Homeland Security and other Federal agencies to help State and local officials develop and carry out a comprehensive set of improvements to increase the security of our transportation network."

Topics covered on the Web site include emergency planning, aligning action plans with the Nation's Homeland Security Advisory System, and improving military mobilization on roadways. "A lot of material has been generated on such security topics over the past 2 years, but getting that information to State and local practitioners has always been a challenge," says Vince Pearce, acting director of FHWA's Office of Transportation Operations. The Web site is designed to gather all this information in one accessible place to help State and local transportation agencies make more informed decisions about improving the security of roadways in their areas. An added benefit is that many of the strategies covered should also help agencies cope better with natural disasters, which place similar demands on

roadways. Case studies cover the transportation components of the 1994 California. Northridge, earthquake: a 2001 rail tunnel fire in Baltimore, Maryland; and the 9/11 terrorist attacks. The site

also contains an activity list that State o cials can use to develop or refine tl action plans for responding to differ Homeland Security alert levels, as well information on how to secure transpo tion-related information technolo resources during an emergency. The links to relevant information from al the administrations within the Der ment of Transportation (DOT), o Federal agencies, and such partners as American Association of State High and Transportation Officials, Transpo tion Research Board, American Pul Works Association, and National Asso tion of County Engineers.

Pearce envisions the site as a doory

through which State local employees can § access to other par with similar interests goals. "Someone in a S DOT may not be awar what the Federal DC other modal adminis tions are doing," Per says, yet those ot sources may have us information to share. tecting bridges and t nels, for example,

cerns not just FHWA, also DOT's railroad and public tra administrations. "Ultimately we hope Web site will help build partnersl among all those involved in protecting maintaining our transportation infrast ture," says Pearce.

Pearce plans to add documents links to the site as he learns of them. ' add anything that transportation high operators would find useful," he notes

For more information on the Op tions Security Web site, contact Vi Pearce at 202-366-1548 (email: vi pearce@fhwa.dot.gov).

"The need to ensure the security of America's surface transportation system is a top priority for the FHWA."



FHWA Operations Security

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Program Components & Activities
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Contacts

PHWA Home | DOT Home

FHWA Operations Security

- The need for ensuring the operation and integrity of America's surface transport following the oversts of September 11, 2001.

  Good transportation system operation is key to ensuring safe, continuous moves.
- during a national security event.
   The full capability of the transportation system must be harnessed and optimized, including use of intelligen
   Transportation Systems (415), to affectively move people and goods during a national security event.

Question: What is FINWA Operations doing to respond to the security challenge?

FHNA Operations is anjaged in emergency preparedness and management, working with other DOT staffield stations and Federal agencies, its State and local partners, apademat, industry associations, and the previous scotte. The purpose is to ensure this staffact enterportation operant generals throughout the nation have then necessary local techniques, information, and understanding to be able to prevent when possible prepared for, respend to, and recover from both natural anneamant decisions. As key demand is "amagined transpression operations perspectives" possible properties of the properties of the

Check out the Public Spligty and Security Program Brochure POF 1.2 M3 for more informatic

Question: What is the goal of emergency transportation operations preparedness?

To ensure that operational policies, professions, procedures, prostices, and improvements are put into place within region that will enable people and goods to move safety and offsetively during theolemays allusions while still enabling emergency access to the scene(s), and will facilitate re-establishment of transportation following an emergency.

Question: How does emergency operational preparedness accomplish this goal?

- caliaboration, information sharing, and sharing to the management or unsupported to communications capability, with agreed-to protocols, standards, and mostages, to enable transportation system operators to communicate with law enforcement, fire and resour, E.135, and other emergency management officials.

  Ensure that transportation operators is an integral part of emergency management planning.

  Ensure that transportation operators is an integral part of emergency management planning.

  Ensure that communications to the public, through model and advanced traver of information services, respecting to elementaristic elements and contains of the highways are an estamble component of enrigency.

  Facilitate full information sharing and data occitorage capabilistics of the tensportation system, including ITS, to support emergency management addresses issues sunounding the movement of freight, including the flow of supplies and naturatio to the emergency arrangement addresses issues sunounding the movement of freight, including the flow of supplies and naturation to the emergency arrangement addresses issues sunounding the movement of freight, including the flow of supplies and naturation to the emergency arranges or site(s), and the restoration of the routine flow of goods and supplies to the general public.

# Proposed Work Zone Regulations to Improve Safety, Mobility

the Nation's aging highway system means that motorists increasingly encounter work zones as part of daily travel. At the same time, traffic volumes and congestion continue to grow. From 1980 to 2000, total vehicle miles traveled in the United States increased 80 percent, while total lane miles of public roads increased by only 2.4 percent. The combination of heavier traffic volumes occurring on road networks with more work zones increases the impacts of those work zones on both congestion and safety. In 2001, 1,079 persons were killed in work zone-related crashes and more than 40,000 were injured. To address these heightened impacts, the Federal Highway Administration (FHWA) is developing a final rule on work zone safety and mobility to update the National Work Zone Safety Program established in 1995.

aintaining and preserving

An Advance Notice of Proposed Rulemaking was submitted to the *Federal Register* on February 6, 2002. After analyzing the comments received, FHWA submitted a Notice of Proposed Rulemaking (NPRM) on May 7, 2003. The NPRM can be found on the Web at www. regulations.gov/freddocs/03-11020.htm. Comments on the proposed rule are due September 4, 2003, with publication of the final rule expected by spring 2004. Comments can be submitted to dmses.dot.gov/submit.

"The regulations address both safety and mobility, recognizing the impact of work zones on both," says Scott Battles, Work Zone Mobility and Safety Team Leader at FHWA. The proposed changes include:

Work Zone Mobility and Safety Pol-\$-States are required to develop and adopt a policy that suports the consideration of the mobility and safety impacts of roadwork accomplished with Federal-aid highway funding. These impacts should be considered both early in the project planning and through the later stages of project development. The content of the

FHWA's new proposed regulations address both the safety and mobility of the Nation's work zones.

planning and through the later stages of project development. The content of the policy would be determined by the State. Examples of topics that could be addressed include classifying road projects into different types based on the expected severity of work zone impacts and developing alternative project planning and design strategies to minimize the impact of work zones on highway users. The policy could also set work zone performance standards. For example, the Ohio Department of Transportation has adopted a policy that sets limitations on the number of lanes that may be closed for construction activities on freeways and similar highways.

Work Zone Impacts Analysis—Agencies would be required to perform a work zone impact analysis for Federal-aid highway projects. However, the degree of analysis is scaleable, based upon agency policy and the expected level of impacts due to spe-

cific project characteristics. The impact analysis will facilitate the consideration of alternative project options and work zone mitigation measures, such as closing roads completely for rehabilitation work, performing work during night-time and offpeak hours, choosing longer-lasting materials to cut down on the need for future maintenance, or accelerating the construction process.

Transportation Management Plans (TMP)—While TMPs are required for all

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# Foamed Asphalt a Success on Federal Lands Highway

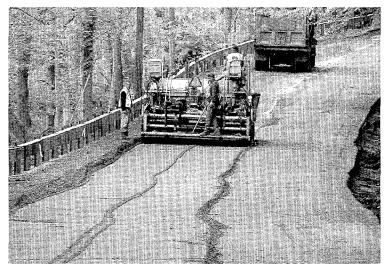
he Federal Highway Administration (FHWA) recently reconstructed the Nation's oldest Federal highway using reclaimed asphalt pavement (RAP) treated with foamed asphalt. Combining cold water with hot asphalt to temporarily create a binding foam is not a new idea; it has been widely applied to virgin and recycled road projects in other countries. To date though, it has only been used sporadically on State and local roads across the United States (see October 2002 Focus). Recent improvements to foaming asphalt application technology are making it an increasingly attractive option, however, for transportation engineers seeking a cost-effective way to create a high-strength road base.

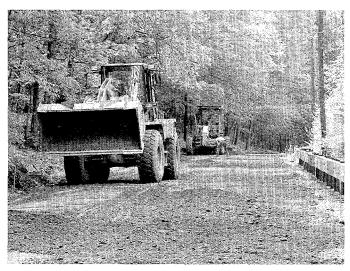
After a failed attempt to apply the technique on Mississippi's Natchez Trace Parkway earlier this year, the FHWA Eastern Federal Lands Highway office decided to try it again on a 10.6-km (6.6-mi) stretch of the South Old Mine Road in New Jersey's Delaware Water Gap National Recreation Area. The road had not been repayed since its construction in the 1880s and was in fair to very poor condition. A complete overhaul was required. But rather than do a full-depth reclamation, FHWA opted to try and save money and natural resources by recycling the asphalt. The most promising approach seemed to be to grind it up, then rebind it with foaming asphalt.

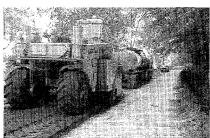
First a reclaimer machine ground up the asphalt and several inches' worth of subbase. The engineers wanted to double the road's thickness, so they also added 5-cm (2-in) of aggregate base into the mix. The ground-up layer was then graded and compacted.

Next the reclaimer was brought back for a second round, this time hooked up to a bitumen tanker and a water truck. As it ground the soil, asphalt, and aggregate for a second time, the mixture was injected with hot bitumen. Very cold water was also added, causing the bitumen to instantly foam up. The reclaimer then lay the mixture down in a uniform "fluff."

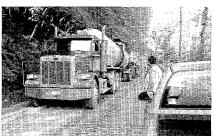
"The foaming only lasts a few seconds, but it's long enough for the bitumen to expand and coat the aggregates," says Tom Jones, the project engineer from the FHWA Eastern Federal Lands Highway office in Sterling, Virginia. "By coating the finer aggregates, it holds it all together."











Top left, a 10.6-km (6.6-mi) stretch of the South Old Mine Road in New Jersey's Delaware Water Gap National Recreation Area is pulverized and 5-cm (2-in) of aggregate base is added. Top right, after the pulverization, the road is graded. Bottom left, center, and right, the foamed asphalt is applied.

The road was again compacted and graded before being covered with a water-based paste that dried to form a moisture-proof seal. Finally, after a week-long curing period, the road was overlaid with 3.8-cm (1.5in) of a Superpave mix design asphalt to ensure motorists would enjoy smooth rides. "The strength, however, is in the expanded foam asphalt," says Jones.

Foaming asphalt "doesn't behave like regular asphalt" during the application process, he adds. "The only thing that is the same is that you use bitumen. The foaming asphalt mixture acts like soil in terms of how you need to treat it; it's very moisture sensitive." A technician therefore had to be on hand to ensure the right proportion of water to bitumen was injected into the pulverized road components.

This moisture sensitivity is the primary reason why foaming asphalt is not appropriate for every road, Jones says, although he adds that "as long as the subgradc is good, you will not have problems." The technique did not work on the Natchcz Trace Parkway because numerous springs flow underneath the road. "A soft subgrade like that will come right to the top," notes Jones.

Subgrade problems also slowed down the Delaware Water Gap project, as the project team had to fill in springs and undercut soft spots. They also had to wait out rain showers while adding the top layer, so that it wouldn't slip on the sealed layer below.

Despite the setbacks enountered, "I'm very happy with how the foaming asphalt project turned out," says Jones. Not only did using the RAP and foamed asphalt combination keep waste materials out of landfills, but the money saved on trucking, disposal, and new materials reduced the budget by at least \$500,000. There are still questions about how the foamed aphalt will perform on other types of roads, such as a major highway with a lot of truck traffic, "but I expect we will try different applications as we experiment more with it," says Jones.

For more information on the project, contact Tom Jones at FHWA, 908-841-9573 (fax: 908-841-9549; email: tom. jones@fhwa.dot.gov).

# Moving from Theory to Practice at the Fifth National Conferences on Asset Management

oving from theory to practice is the focus of the upcoming Fifth National Conferences on

Asset Management, which will detail how State and local governments have adopted Asset Management programs. An east coast conference will be held in Atlanta, Georgia, from September 29-30, 2003, with a west coast version scheduled for October 21-22, 2003, in Seattle, Washington.

"Transportation Asset Management is a strategic approach to maximizing the benefits from resources used to operate, expand, and preserve the transportation infrastructure," says Roemer Alfelor of the Federal Highway Administration (FHWA). The conferences will feature case studies by State and local government agencies and six interactive workshops. The first workshop session will highlight tools that can assist in the adoption and practice of Transportation -Asset Management (TAM). A panel of representatives from private sector organizations will discuss their experiences in using Asset Management in Session 2. For Session 3, practitioners and researchers will report on their experiences in integrating different data systems. Session 4 will cover the use of TAM as a tool to communicate with stakeholders, decision-makers, employees, while Session 5 will address local government experiences in implementing Asset Management. The sixth session will provide guidance on how to take the first steps in starting an Asset Management program, including looking at the tools and techniques that have worked for other organizations. Each workshop session will be offered twice in both Atlanta and Seattle.

A closing session will address the Governmental Accounting Standards Board's (GASB) Statement 34, including what various agencies have done to implement GASB 34 and what they have learned.

Conference sponsors include the American Association of State Highway and Transportation Officials, American Public Works Association, Midwest Regional University Transportation Center, Transportation Research Board (TRB), FHWA, Georgia Institute of Technology, Georgia Department of Transportation, Midwest Transportation Consortium, and the Georgia State Road and Tollway Authority.

The deadlines for early registration at reduced rates are September 2 for the Atlanta conference and September 23 for the Seattle conference.

For more information or to register for the conference, visit gulliver.trb.org/conferences/Asset. Information is also available from Tom Palmerlee of TRB, 202-334-2907 (email: tpalmerlee@nas. edu) or Fred Scharf of TRB, 202-334-2966 (email: fscharf@nas.edu).

# Highway Technology Calendar

The following events provide opportunities to learn more about products and technologies for accelerating in & structure innovations.

# Aklali-Silica Reactivity/Lithium Implementation Workshop

September 3, 2003, Los Angeles, CA
This workshop will provide participants with insight on testing, specifying, and using lithium compounds to curtail or prevent damage from alkalisilica reactivity (ASR) in new or existing concrete structures and pavements. The workshop will also provide a basic overview of ASR, including symptoms of ASR damage in field structures and pavements, mitigation approaches, test methods, and specifications.

Contact: Bob Sugar at the California Department of Transportation, 916-227-7294 (fax: 916-227-7242; email: Bob.Sugar@dot.ca.gov).

# **Eighth Annual Eastern Winter Road Maintenance** Symposium **and Equipment Expo**

September 3–4, 2003, Manchester, NH

The symposium will feature environmental, safety, and operations tracks. Topics will include road weather information systems, environmental concerns and winter maintenance operations, and motor carrier regulations and their effects on operations. Event sponsors are the New Hampshire Department of Transportation, Federal Highway Administration (FHWA), University of New Hampshire Technology Transfer Center, and the Local Technical Assistance Program.

Contact: Deborah Vocke at FHWA, 410-962-3744 (fax: 410-962-3419; email: deborah.vocke@fhwa.dot.gov) or the Maintenance Bureau of the

New Hampshire Department of Transportation, 603-271-2693 (fax: 603-271-6084).

#### International Conference on Highway Pavement Data, Analysis, and Mechanistic Design Applications

September 7–10, 2003, Columbus, OH The forum will bring together engineers, researchers, and practitioners from State highway agencies, FHWA, academia, the private sector, and industry to exchange recent developments and findings on the structural performance of flexible and rigid pavements. Topics covered will include the validation, calibration, and implementation of mechanistic design procedures.

Contact: Herman Rodrigo at FHWA, 614-280-6850 (fax: 614-280-6876; email: herman.rodrigo@fhwa.dot.gov; Web: webce.ent.ohiou.edu/ICHP. html), or Bill Kenis at FHWA, 202-493-3149 (fax: 202-493-3086; email: bill.kenis@fhwa.dot.gov).

#### Fifth National Conferences on Asset Management

September 29, 2003, Atlanta, GA October 21, 2003, Seattle, WA

Sponsored by the American Association of State Highway and Transportation Officials (AASHTO) Task Force on Asset Management and the FHWA Office of Asset Management, the event will include sessions on tools and technology, GASB 34, data integration, and local government experiences.

Contact: Ernie Wittwer, Sarah Brehm, or Jason Bittner at 608-263-2655

(email: wittwer@engr.wisc.edu; Web: gulliver.trb.org/conferences/asset).

#### Western Bridge Engineers' Semina

October 5-8, 2003, Reno, NV

The seminar is a biennial cooperateffort by FHWA and the State Traportation Departments of Alaska, C fornia, Idaho, Nevada, Oregon, a Washington State. It allows Governmagencies, consultants, contractors, edutors, and suppliers to exchange infortion on subjects of current interest in design, construction, and maintenance bridges.

Contact: Jean Canfield, Conference Manager, at 360-943-7732 (fax: 360-3 9607; email: jeancassoc@msn.com).

#### Third International Symposium on HPC

October 19–22, 2003, Orlando, FL Sponsored by FHWA and the Prec Prestressed Institute, the symposium address the research, design, constition, performance, and benefits of hiperformance concrete (HPC).

Contact: Jerry Potter at FHWA, 202-366-4596 (email: jerry.potter@fhwa.dot.gov) or Lou Triandafilou at FHWA, 410-962-3648 (email: lou.triandafilou@fhwa.dot.gov).

# World Steel Bridge Symposium ar Workshops

November 19–21, 2003, Orlando, FL The symposium will cover such for areas as short and intermediate subridges, accelerated bridge construction innovative bridge designs, and inspect

and maintenance. The event is sponsored by the National Steel Bridge Alliance and FHWA.

Contact: Darice Elam at the National Steel Bridge Alliance, 3 12-670-7011 (fax: 3 12-670-5403; email: elam@nsbaweb.org).

#### **Asphalt Rubber 2003**

December 2–4, 2003, Brasilia, Brazil The conference will cover such topics as asphalt rubber binder properties, hotmix properties, design guidelines, recycling, and performance modeling.

Contact: Consulpav International at ar2003@consulpav.com.

#### Fourth National Seismic Conference and Workshop on Bridges and Highways

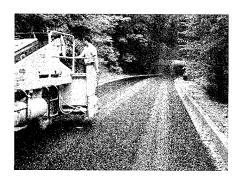
February 9-1 1, 2004, Memphis, TN

The conference will provide a forum for exchanging information on current national and regional practices for designing seismic-resistant bridges and highway systems and retrofitting existing structures and highways. An International Forum will feature speakers from various countries that have implemented advanced earthquake design and mitigation technologies and approaches. A Technology Show and Information Display will also showcase innovative technologies for earthquake engineering.

Contact: Wendy Pickering at the University of Illinois, 217-333-2880 (fax: 217-333-9561; email: fourthphseismicconf@ad.uiuc.edu; Web: www.conferences.uiuc.edu/seismic).

way Specifications Web site is helping to advance the concepts of e-government by using the power of the Internet to remove Federal and State Government organizational barriers, improve the operational efficiency of the Government, and expand the range and quality of government services available to the public," says Jacoby.

To learn more about the National Highway Specifications Web site, contact Ken Jacoby at FHWA, 202-366-6503 (fax: 202-366-9981; email: ken.jacoby@fhwa.dot.gov).



Thousands of highway construction specifications are now available online at the National Highway Specifications Web site.

Federal-aid projects, the extent of the TMP depends upon the results of the work zone impact analysis. At a minimum, a traffic control plan is required for all projects, which is no change from the current regulations. Under the new regulations, a transportation operations plan is also required if recommended by the impact analysis study. This plan should include methods of managing work zone traffic operations, such as through use of intelligent transportation system traffic control and traveler information technology, speed management and enforcement measures, and safety reviews and audits. Going a step further, a public information and outreach plan should be developed if the impact analysis recommends it. The plan should cover methods for ensuring that affected road users, the general public, businesses, and other appropriate entities are informed about the project, the expected work impacts, and the changing conditions of the project.

For more information on the proposed regulations, contact Scott Battles at FHWA, 202-366-4372 (email: scott. battles@fhwa.dot.gov).

A new FHWA publication, Guidelines for the Use of Lithium to Mitigate or Prevent ASR, provides a detailed introduction to using lithium compounds to combat alkali-silica reactivity in concrete structures (see November 2002 Focus). Copies can be obtained from the:

FHWA Research and Technology Report Center 9701 Philadelphia Court Unit Q Landham, MD 20706

Phone: 301-577-0818

Email: Report.Center@fhwa.dot.gov



# **FOCUS**

Focus (ISSN 1060-6637), which is published monthly by the U.S. Department of Transportation's Federal Highway Administration (FHWA), covers the implementation of innovative technologies in all areas of infrastructure.

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FHWA Administrator: Mary E. Peters

Managing Editor; Zachary Ellis Tel: 202-493-3193 (fax: 202-493-3475)

zac.ellis@fhwa.dot.gov Editor: Lisa Pope

Tel: 202-234-7157 (fax: 202-347-6938)

lgpope@woodwardcom.com

Federal Highway Administration (HRTS)

6300 Georgetown Pike McLean, VA 22101-2296

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